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SHEMWELL GREGORY & COURTNEY LLP
4880 STEVENS CREEK BOULEVARD
SUITE 201
SAN JOSE, CA 95129

EXAMINER	
LUGO, DAVID B	

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2634	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 09/551,276	Applicant(s) UNDERBRINK ET AL.	
	Examiner David B. Lugo	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 3/11/04 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on U.S. Application Number 09/551,802 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

2. Applicant's arguments, see page 25, filed 3/11/04, with respect to the rejection(s)of claim(s) 1, 2, 4, 6, 9, 11-14, 17, 20, 22-25, 28, 31, 33-35, 38 and 41, under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a new prior art reference.

Specification

3. The disclosure is objected to because of the following informalities:

Page 44, lines 14-17, reference to U.S. patent application serial no. 09/145,055 should be updated to include that it is now U.S. Patent No. 6,044,105.

Appropriate correction is required.

Claim Objections

4. Claims 2, 5-7 and 51 are objected to because of the following informalities:

a. Claim 2 recites the limitation "the…integrating step" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the term

"combining" in the next to last line of parent claim 1 be changed to --integrating-- to provide proper antecedent basis for the "integrating" of claim 2.

b. Claim 5, line 3, "more then" should be --more than--.

c. Claim 6, line 2, "noncoherently" should be --coherently-- since combining values coherently involves having a magnitude and a phase, as recited in lines 3-4.

d. Claims 6 and 7 each recite, "the combining step" in line 2, respectively. However, parent claim 1 recites two combining steps, and thus there is an ambiguity as to which combining step is being referred. In accordance with the suggested amendment of claim 1 indicated in the above claim objection, in line 2 of each of claims 5 and 6, "the combining" should be --the integrating--.

e. Claim 51, line 13, "fourth in instructions" should be --fourth instructions--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-7, 9-18, 20-29 and 31-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westcott et al. U.S. Patent 6,298,083 in view of Krasny et al. U.S. Patent 6,563,861 (cited in previous Office action).

7. Regarding claims 1, 13 and 24, Westcott et al. disclose in Fig. 8, a spread spectrum detector where a signal is received, a correlator 73 generates a plurality of correlation values

based on the signal and a code generated by reference code generator 77, and an accumulation block 74, shown in detail in Fig. 12, includes multipliers 110 generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value that indicates a degree of correspondence of the code with the signal (see col. 13, line 1 to col. 14, line 17).

8. Westcott et al. do not disclose the use of a fast Fourier transform to generate the second correlation values.

9. Krasny et al. teach the use of a fast Fourier transform for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

10. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Westcott et al. as a matter of design choice.

11. Regarding claim 34, Westcott et al. disclose in Fig. 8, a spread spectrum detector where a signal is received, a correlator 73 generates a plurality of correlation values based on the signal and a code generated by reference code generator 77, and an accumulation block 74, shown in detail in Fig. 12, includes multipliers 110 generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117

to provide a third correlation value that indicates a degree of correspondence of the code with the signal (see col. 13, line 1 to col. 14, line 17).

12. Westcott et al. do not disclose that the detector may be implemented via a computer readable medium having program instructions. However, it is well known in the art to implement receivers using computer readable medium containing program instructions.

13. Therefore, it would have been obvious to one of ordinary skill in the art to implement the detector of Westcott et al. using computer readable medium having program instructions because hardware and software implementations are well-recognized art equivalents.

14. Further, Westcott et al. do not disclose the use of a fast Fourier transform to generate the second correlation values. However, processing signals in the time domain or in the frequency domain by employing a FFT are well-recognized art equivalents.

15. Krasny et al. teach the use of a fast Fourier transform for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9).

16. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Westcott et al. as a matter of design choice.

17. Regarding claims 2, 14, 25 and 35, Westcott et al. disclose that code acquisition is performed by searching a region defined by a number of code offset values, where the offsets represent different values of phase offset between the received code and the reference code (col. 1, lines 36-46), correlation stage 73 search sets of code offset bins (col. 6, lines 3-7) and outputs correlation results to accumulation 74 (col. 9 lines 9-13), and threshold detect/buffer circuit

(TDBC) 75 applies a threshold function to the signals output from accumulation stage 74 to provide an indication when a signal is found (see col. 9, lines 31-33, Fig. 8).

18. Regarding claims 3, 15, 26 and 36, Westcott et al. disclose in Fig. 11, that the correlation stage 73 includes correlator/shift register (CSR) 105 that provides the XOR of each bit of the input signal and each bit of the reference code, and fractal adder circuit 106 that provides a summation of the COR values (see col. 12, lines 15-46).

19. Regarding claims 4 and 23, the combination of Westcott et al. and Krasny are considered to teach communicating stored correlation values to logic for implementing the FFT.

20. Regarding claims 5, 16, 27 and 37, Westcott et al. disclose that code acquisition is performed by searching a region defined by a number of code offset values, where the offsets represent different values of phase offset between the received code and the reference code (col. 1, lines 36-46), correlation stage 73 search sets of code offset bins (col. 6, lines 3-7) and outputs correlation results to accumulation stage 74 (col. 9 lines 9-13), where each of the correlation values are considered to be stored, and threshold detect/buffer circuit (TDBC) 75 repeatedly applies a threshold function to the signals output from accumulation stage 74 to provide an indication when a signal is found (see col. 9, lines 31-33, Fig. 8).

21. Regarding claims 6, 17, 28 and 38, Westcott et al. further disclose that coherent accumulators 114 are used for accumulating both in-phase and quadrature components (col. 13, lines 33-41).

22. Regarding claims 7, 18, 29 and 39, Westcott et al. further disclose magnitude/non-coherent accumulation circuits (MNCAs) 117 perform non-coherent accumulation (col. 14, lines 10-12).

23. Regarding claims 9, 20 and 31, the first correlation values are considered to be produced via a digital signal processor, shown in Fig. 11.

24. Regarding claims 10, 21, 32 and 40, the input signal is received from a GPS satellite (col. 1, lines 15-18).

25. Regarding claims 11, 22, 33 and 41, the signal is a carrier signal modulated with a repeating code (col. 1, lines 15-29).

26. Regarding claim 12, an indication when a signal is found is provided by TDBC 75, which is considered a processor circuit.

27. Claims 8, 19 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Westcott et al. in view of Krasny et al. as applied above, and further in view of Atarius et al. U.S. Patent 6,373,882.

28. Regarding claims 8, 19 and 30, Westcott et al. and Krasny et al. disclose a spread spectrum detector comprising a searcher for generating correlation values, as disclosed above, but do not disclose that the correlation values are produced by a matched filter.

29. However, it is well known in the art to use a matched filter in a searcher. Further, Atarius et al. disclose in column 5, lines 57-63 that searchers using matched filters and those using correlators are well recognized art equivalents. Therefore, it would have been obvious to one of ordinary skill in the art to use a matched filter in the searcher of Westcott et al. as they are art recognized equivalents.

30. Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 5,825,327 (disclosed by applicant) in view Westcott et al. and Krasny et al.

31. Krasner '327 discloses a GPS receiver including all of the limitations of claims 42 and 43 (see '327 Patent, claims 1 and 30) except for a multiplier for producing first correlation values using the signal and a code, a phase shifter for generating second correlation values from the first correlation values using an FFT, and an integrator for deriving a third correlation value.

32. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

33. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

34. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

35. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

36. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 5,945,944 (disclosed by applicant) in view Westcott et al. and Krasny et al.

37. Krasner '944 discloses a method for determining a position of a GPS receiver with all of the limitations of claim 44 (see '944 Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

38. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

39. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

40. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

41. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

42. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 5,831,574 (disclosed by applicant) in view Westcott et al. and Krasny et al.

43. Krasner '574 discloses a method of operating a GPS receiver with all of the limitations of claim 45 (see '574 Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

44. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

45. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

46. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

47. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

48. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 5,884,214 (disclosed by applicant) in view Westcott et al. and Krasny et al.

49. Krasner '214 discloses a method for using a dual mode GPS receiver including all of the limitations of claim 46 (see '214 Patent, claim 11) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

50. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

51. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

52. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

53. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

54. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 5,874,914 (disclosed by applicant) in view Westcott et al. and Krasny et al.

55. Krasner '914 discloses a method for determining the position of a remote unit with all of the limitations of claim 47 (see '914 Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

56. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

57. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

58. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

59. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

60. Krasner '914 discloses a method of using a base station for providing a communications link to a mobile GPS unit including all of the limitations of claim 48 (see '914 Patent, claim 17)

except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

61. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

62. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

63. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

64. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

65. Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 6,016,119 (disclosed by applicant) in view Westcott et al. and Krasny et al.

66. Krasner '119 discloses a method of determining the location of a remote object with all of the limitations of claim 49 (see '119 Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

67. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

68. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

69. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

70. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

71. Krasner '119 discloses a method of tracking a remote object with all of the limitations of claim 50 (see '119 Patent, claim 14) except producing first correlation values using the signal

and a code, generating second correlation values from the first correlation values, and combining the second correlation values to generate a third correlation value.

72. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

73. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

74. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

75. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

76. Claims 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 5,781,156 (disclosed by applicant) in view Westcott et al. and Krasny et al.

77. Krasner '156 discloses a computer readable medium containing a computer program having executable code for a GPS receiving having all of the limitations of claim 51 (see '156

Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

78. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

79. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

80. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

81. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

82. Krasner '156 discloses a computer readable medium containing a computer program having executable code for a GPS receiving having all of the limitations of claim 52 (see '156 Patent, claim 12) except producing first correlation values using the signal and a code, generating

second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

83. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

84. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

85. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

86. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

87. Claims 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 5,841,396 (disclosed by applicant) in view Westcott et al. and Krasny et al.

88. Krasner '396 discloses a method of calibrating a local oscillator in a GPS receiver with all the limitations of claim 53 (see '396 Patent, claim 1) except producing first correlation values

using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

89. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

90. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

91. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

92. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

93. Krasner '396 discloses a method of using a base station to calibrate a local oscillator in a mobile GPS receiver with all the limitations of claim 54 (see '396 Patent, claim 17) except producing first correlation values using the signal and a code, generating second correlation

values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

94. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

95. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

96. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

97. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

98. Krasner '396 discloses a method of deriving a local oscillator in a GPS receiver with all the limitations of claim 55 (see '396 Patent, claim 29) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

99. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

100. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

101. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

102. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

103. Claims 56 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheynblat U.S. Patent 5,999,124 (disclosed by applicant) in view Westcott et al. and Krasny et al.

104. Sheynblat '124 discloses a method for processing position information with all of the limitations of claim 56 (see '124 Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

105. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

106. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Sheynblat to compensate for Doppler shift.

107. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

108. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Sheynblat and Westcott et al. as a matter of design choice.

109. Sheynblat '124 discloses a method for processing position information in a digital processing system including all of the limitations of claim 57 (see '124 Patent, claim 12) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

110. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

111. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Sheynblat to compensate for Doppler shift.

112. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

113. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Sheynblat and Westcott et al. as a matter of design choice.

114. Claim 58 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krasner U.S. Patent 6,002,363 (disclosed by applicant) in view Westcott et al. and Krasny et al.

115. Krasner '363 discloses a method of controlling a communication link including all of the limitations of claim 58 (see '363 Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values using an FFT, and combining the second correlation values to generate a third correlation value.

116. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

117. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Krasner to compensate for Doppler shift.

118. In addition, Krasny et al. teach the use of an FFT for performing correlation in the frequency domain (col. 5, line 65 to col. 6, line 9). Further, processing signals in the time domain or in the frequency domain by employing an FFT are well-recognized art equivalents.

119. Thus, it would have been obvious to one of ordinary skill in the art to use the teaching of Krasny et al. to use a fast Fourier transform to perform correlation in the frequency domain in the spread spectrum detector of Krasner and Westcott et al. as a matter of design choice.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

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3/31/04

STEPHEN CHIN
SUPERVISORY PATENT EXAMINE
TECHNOLOGY CENTER 2600